What is claimed is:

1. A plastid transformation vector for stably transforming a plastid, said plastid vector comprising, as operably linked components, a first flanking sequence, a DNA sequence coding for a protective antigen capable of expression in a plastid, and a second flanking sequence.

- 2. The vector of claim 1 wherein said protective antigen is a bacterial antigen.
- 3. The vector of claim 2 further comprising an appropriate regulatory sequence.
- 4. The vector of claim 3 having a plurality of said appropriate regulatory sequences comprising a promoter operative in said plastid, a 5' untranslated region (UTR), and a 3' untranslated region.
- 5. The vector of claim 4 wherein, said components are arranged, in the 5' to 3' direction as follows: said first flanking sequence, said promoter, said 5' untranslated region (UTR), said DNA sequence coding for a bacterial protective antigen, said 3' untranslated region, and said second flanking sequence.
- 6. The vector of claim 5 wherein said bacterial protective antigen is anthrax protective antigen (PA).

7. The vector of claim 1 further comprising a DNA sequence encoding a selectable marker.

- 8. The vector of claim 7 wherein said DNA sequence encoding a selectable marker encodes an antibiotic-free selectible marker.
- 9. The vector of claim 8 wherein said DNA sequence encoding a selectable marker encodes BADH.
- 10. The vector of claim 7 wherein said DNA sequence encoding a selectable marker encodes an antibiotic resistance selectible marker.
- 11. The vector of Claim 1, wherein the plastid is selected from the group consisting of chloroplasts, chromoplast, amyloplast, proplastide, leucoplast, and etioplast.
- 12. The vector of Claim 1, wherein the vector is competent for stably integrating into a plastid of different plant species and wherein the flanking DNA sequences are homologus to sequences in a spacer region of said plastid and wherein said flanking sequences are conserved in the plastid of different plant species.
- 13. The vector of Claim 12, wherein said spacer region is a transcriptionally active spacer region.

14. The vector of Claim 1, wherein the vector further comprises a DNA sequence coding for a chaperonin.

- 15. A plant stably transformed with the vector of Claim 2.
- 16 A progeny of the plant of claim 15.
- 17. A seed of the plant of claim 15.
- 18. A part of the plant of claim 15, comprising a plastid including said DNA sequence coding for a protective antigen.
- 19. A part of the plant of claim 16, comprising a plastid including said DNA sequence coding for a protective antigen.
- 20. The vector of claim 3 wherein said appropriate regulatory sequence comprises a promoter operative in said plastid.
- 21. The vector of Claim 2, wherein the vector further comprises a DNA sequence coding for a chaperonin.
- The vector of Claim 1, wherein said DNA sequence coding for a protective antigen is located in an inverted repeat region of said plastid genome.
- The vector of Claim 1, wherein said DNA sequence coding for a protective antigen is located in a single copy region of said plastid genome.
 - 24. The vector of Claim 1, further comprising a plastid promoter.

25. The vector of Claim 24, wherein said promoter is a 16S sRNA promoter.

- 26. The vector of Claim 2, wherein said DNA sequence coding for a bacterial antigen is regulated by plastid 5' and 3' elements.
- 27. The vector of Claim 26, wherein said plastid 5' and 3' elements are 5' and 3' elements of psbA.
- 28. The vector of Claim 26, wherein said plastid 5' and 3' elements are 5' and 3' elements of Cry2Aa2 UTR.
- The vector of Claim 3, wherein said regulatory elements comprise a T7 gene 10 leader sequence.
- 30. The vector of Claim 3, wherein said regulatory elements comprise elements of a T7 gene 10 leader sequence and elements of Cry2Aa2 UTR.
- 31. The vector of claim 2 wherein said bacterial antigen is an antigen of Y. pestis.
- 32. The vector of claim 31 wherein said bacterial antigen comprises both the V and F1 antigens of Y. pestis.
- 33. The vector of claim 32 wherein said bacterial antigen comprises a fusion protein of V and F1 antigens of Y. pestis.

34. A process for producing a protective antigen comprising:
integrating a plastid transformation vector according to claim 1 into the plastid genome of a plant cell;

growing said plant cell to thereby express said protective antigen.

- 35. The process of claim 34 wherein said protective antigen is competent to produce an immunogenic response in a mammal.
- 36. A vaccine for conferring immunity to *Bacillus anthracis* to a mammal comprising anthrax immunogenic protective antigen, wherein said vaccine is free of both anthrax edema factor and anthrax lethal factor.
- 37. An orally-administrable vaccine for conferring immunity to *Bacillus* anthracis to a mammal comprising anthrax immunogenic protective antigen.
- 38. A process for vaccinating a mammal against *Bacillus anthracis* comprising feeding to said mammal an effective amount of the vaccine of claim 37.
- 39. An orally-administrable vaccine for conferring immunity to *Yersina* pestis to a mammal comprising an F1-V fusion protein.
- 40. A process for vaccinating a mammal against *Yersina pestis* comprising feeding to said mammal an effective amount of the vaccine of claim 39.

41. A plant plastid comprising a DNA coding sequence for a protective antigen.

- 42. The plastid of claim 41 wherein said protective antigen is a bacterial antigen.
 - 43. A plant cell comprising a plastid according to claim 42.
 - 44. A plant comprising a plastid according to claim 42.